

WHAT IS CLAIMED IS:

1. An integrated system for testing a photon emitting device, said device stimulated temporally, comprising:

- 5 a test bench for placing the device thereupon;
an adapter for coupling electrically stimulating signals to said device;
collection optics for collecting photons emitted from said device in response to said stimulating signals;
a spectrally selective element for spectrally selecting said photons;
10 a time-resolved photon sensor for detecting said photons;
a timing mechanism for timing the sensor detection of said photons.

2. The system of claim 1, wherein said spectrally selective element comprises a filter.

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3. The system of claim 1, wherein said spectrally selective element comprises a grating.

4. The system of claim 1, wherein said spectrally selective element comprises a plurality of filters, each filter providing a pre-determined spectral band.

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5. The system of claim 1, wherein said spectrally selective element comprises a Fourier-transform spectrometer.

6. The system of claim 1, wherein said photon sensor comprises a detector array,
and wherein said spectrally selective element spatially disperses the spectral
bandwidth so that each pre-determined spectral bandwidth impinges on a
predetermined location of said detector array.

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7. The system of claim 3, wherein said photon sensor comprises a plurality of
photon detectors.

8. The system of claim 3, wherein said photon sensor is movable spatially.

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9. The system of claim 3, wherein said photon sensor is a two dimensional
detector.

10. The system of claim 3, wherein the grating is moveable, both in angular
15 orientation and spatial position.

11. The system of claim 4, wherein each of said filters is selectably insertable into
the optical path of said photon detector.

20 12. The system of claim 11, wherein said plurality of filters are provided on a
rotating filter wheel.

13. The system of claim 1, further comprising a solid immersion lens (SIL).

14. The system of claim 13, wherein said SIL is bi-convex.

15. An integrated system for testing a photon emitting device, said device stimulated temporally, comprising:

- 5 a test bench structured to mounting the device thereupon;
an adapter enabling coupling of electrically stimulating signals to said device;
collection optics situated to collect photons emitted from said device in response to said stimulating signals;
multimode fiber coupled to said collection optics to thereby receive the
10 collected photons;
a spectrally selective element providing spectral selection of said photons;
a time-resolved photon sensor for detecting said photons;
a timing mechanism for timing the sensor's detection of said photons.

15 16. The system of claim 15, wherein said spectrally selective element comprises one of: a filter, a grating, and a Fourier-transform spectrometer.

17. A method for testing a photon emitting device, comprising:
temporally stimulating said device so as to cause said device to emit photons;
collecting said photons emitted from said device;
20 spectrally separating said photons; and
time-resolving said photons to thereby provide emission timing of photons at separate spectral frequency.